ABSTRACT

A novel method and apparatus for applying overlaid perturbation vectors for gradient feedback transmit antenna array adaptation is disclosed. The method and apparatus of the present invention allows a communication system to reduce transmit power that is associated with dedicated pilot signals by overlaying perturbation vectors and measuring channel estimates and demodulation channel estimates during a measurement time interval that comprises a plurality of feedback time intervals. The present inventive method utilizes channel estimates that include the effects of previous perturbation vectors, subsequent feedback vectors and intermediate feedback decisions. The inventive method extracts a coarse gradient estimate by utilizing a continuous summation of overlaid weight vector perturbation vectors and updates the weighting vector accordingly.